

DOCUMENT RESUME

ED 464 021

SO 033 785

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TITLE Folding Our Way to Productivity. Active Learning Lessons. Economics International.

INSTITUTION National Council on Economic Education, New York, NY.

PUB DATE 2002-00-00

NOTE 13p.; For additional "Active Learning Lessons," see SO 033 779-786.

AVAILABLE FROM National Council on Economic Education, 1140 Avenue of the Americas, New York, NY 10036. Tel: 800-338-1192 (Toll Free); e-mail: info@ncee.net. For full text: <http://www.economicsintl.org/pubs/lessons/jan00/jan00.html>.

PUB TYPE Guides - Classroom - Teacher (052)

EDRS PRICE EDRS Price MF01 Plus Postage. PC Not Available from EDRS.

DESCRIPTORS Active Learning; Curriculum Enrichment; *Economics; *Economics Education; Secondary Education; Social Studies; Student Educational Objectives

IDENTIFIERS *Economic Concepts; National Standards Project in Economics; Origami

ABSTRACT

This lesson plan was developed through "Economics International," an international program to help build economic education infrastructures in the emerging market economies. It provides a lesson description; economic concepts; content standards and benchmarks; related subject areas; instructional objectives; time required for lesson completion; materials needed; a detailed step-by-step procedure; closure activities; assessment questions; and extension exercises. The lesson also contains three activity sheets. Students become workers with the choice of producing an origami cup or an origami box and participate in two production rounds, one with training and one without training. (BT)

National Council
on Economic Education

Economics International

Active Learning Lessons

Folding Our Way to Productivity

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 - provides professional development for teachers and teacher trainers
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 - advises on development of standards, curricula, and assessment tools
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ACTIVE LEARNING LESSONS: FOLDING OUR WAY TO PRODUCTIVITY

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Description: Students become workers and are given the choice of producing an origami cup or an origami box. Students participate in two production rounds, one without training and one with training. Through training students observe how productivity increases and as a result how income increases. They also discover that their choice of job determines their income.

Economic Concepts: Productivity, income

Content Standard 13: Income for most people is determined by the market value of the productive resources they sell. What workers earn depends, primarily, on the market value of what they produce and how productive they are.

Benchmark 4: More productive workers are likely to be of greater value to employers and earn higher wages than less productive workers.

Benchmark 5: People's incomes, in part, reflect choices they have made about education, training, skill development, and careers. People with few skills are more likely to be poor.

Related Subject Areas: Mathematics, visual arts

Instructional Objectives:

1. Define income as the market value of the productive resources people sell.
2. Define productivity as the amount of output produced per unit of input used.
3. Explain how increased training can lead to greater productivity.
4. Explain how increased productivity leads to greater income.
5. Explain how education and career choices affect people's income.

Time Required: 90 to 100 minutes

Materials:

- Approximately 250 sheets of paper each 5.5 inches square (Construction paper is too heavy.)
- Copies of Activities 2 and 3, one per student
- Transparency of Activities 2 and 3
- 16-18 copies of Activity 1; cut apart the \$1, \$5, and \$10 bills
- 100 pieces of candy or other small items for students to purchase

Procedure:

Part 1

1. Tell students that you own a shop called "Folding Mania" and that you need to hire workers to produce origami cups and origami boxes that are also called water bombs. *Note:* Two other products can be substituted in this production activity. One must be easy and one difficult to construct.
2. Tell students that you are going to hire them to work in your shop and they will need to decide which origami product they would like to make.
3. **Quickly demonstrate how to construct both origami products. Do not give any verbal instructions.**
Instructions for the origami cups are at
<http://users.bigpond.net.au/mechtoys/waterbomb.html>
Instructions for the origami boxes are at
<http://www.learn2.com/08/0855/08555.php3>
4. Tell students that as workers in the Folding Mania shop they will receive income in the form of wages.
5. Define income as the payment that people and households receive for providing their productive resources in the marketplace.
6. Display the play money bills and inform the students that you will pay workers \$1 for each completed cup and \$20 for each completed box. Point out that all completed products must pass quality control. Tell students you will check all final products. If they are not of the same quality as those you made, they will be rejected. The worker who made the rejected good will not receive payment for that product.
7. Inform students that they can use their wages to purchase candy. (Other small desirable rewards may be substituted for candy.). Candy will be sold at a price of \$10 per piece.

8. Tell students to choose which origami object they want to produce. Everyone may choose to produce cups. This is all right.
9. Organize student desks into two areas—one for producing cups and one for boxes.
10. Give each group a supply of square paper (approximately 150 sheets for cups and 100 sheets for boxes) with which to produce their products. Make sure the paper is equally accessible to all workers within a production area.
11. Inform students that they will have five minutes to produce as many of their chosen product as possible. Remind them that to receive wages the product must look the same as the model that you made. Set the timer for five minutes and tell students to begin production.
12. Stop production at the end of five minutes. Quickly inspect all products indicating which products pass quality control. Pay the workers accordingly.
13. Allow students to purchase pieces of candy at a price of \$10 per item. Most likely no one will have enough income to purchase any candy.
14. Display a transparency of Activity 2. Select one student and use his/her data to complete the chart for Period 1. Distribute a copy of Activity 2 to each student. Instruct the students to complete the chart for Period 1 recording the name of the good they produced, the total quantity they produced, the number of accepted goods, the wage paid for each accepted good, and the total income they received.
15. Discuss the following:
 - a. Why weren't very many goods produced? *[Without training it is unlikely workers can produce a quality good.]*
 - b. Are you satisfied with the income you earned? *[No.]*
 - c. What can you do to increase your income? *[Make more high quality goods.]*
 - d. How can you produce more high-quality goods? *[Receive more instruction on how to make the good with step by step procedures.]*
 - e. Would you like time to practice how to make your origami product? *[Yes.]* Why would this help you earn more income? *[Produce more that are of higher quality.]*

Part 2

1. Demonstrate how to make each product **in detail with verbal instructions** to the appropriate group. If possible, have an aide or parent volunteer give instructions to one of the groups. During the training make one fold at a time and then give the students time to make the same fold with their own sheet of paper. This helps the student better understand the construction procedure. Allow time for students in both groups to practice making one product.
2. After practice, announce that students will have 5 minutes to produce as many of their chosen product as desired. Remind students that to receive wages the product must be of the same quality as the model you made.
3. Set the timer for 5 minutes and tell the students to begin production.
4. After 5 minutes, stop production and quickly inspect all products, indicating which products pass quality control. Pay workers accordingly. Allow students to use their income to purchase pieces of candy.
5. Instruct students to complete Period 2 on Activity 2 recording the name of the good they produced, the total quantity they produced, the number of accepted goods, the wage paid for each acceptable good, and the total income they received.
6. Explain that productivity refers to the number of units of output produced per worker for each 5-minute period.
7. Discuss:
 - a. What was your productivity in period 1? *[Accept several answers.]*
 - b. What was your productivity in period 2? *[Accept several answers.]*
 - c. Why was there a change in productivity between period 1 and period 2? *[Students received training and practice time. They improved their skills or human capital.]*
 - d. What happened to the amount of candy you were able to buy between period 1 and period 2? *[It increased.]* Why? *[The income students received increased due to increases in productivity.]*

Part 3

1. Instruct students to:
 - a. Complete the sentence at the bottom of Activity 2 by circling $<$, $>$, or $=$ and complete the sentence by explaining why the change between period 1 and period 2 occurred.

- b. Construct a bar chart depicting their productivity before training and after completing training.
2. Ask students, "Why were the box makers paid an amount higher than the cup makers for each unit produced?" *[The job of making boxes was more difficult than that of making cups and required more skills. The employer was willing to pay a higher amount for the job that required more skills.]* If none of students chose to make boxes, ask the class why? *[It looked like a difficult task, afraid they wouldn't be able to make any and receive a wage.]*
 3. Explain that their choice of career and the education and skills they have affects the income they are likely to receive over their lifetime. Discuss:
 - a. Who made more income, cup makers or box makers? *[Most likely, box makers earned a greater income.]*
 - b. What was your strategy or reason for choosing to be a cup maker (or a box maker)? *[Answers will vary.]*
 - c. How did the training you received help you in your job? *[Increased output per period.]*
 - d. How did career choice, selecting cup making or box making, affect income? *[The more difficult product to make received higher pay.]*
 - e. How did career choice affect the amount of candy you were able to purchase? *[Those who had the job involving more skills received higher wages and were able to purchase more candy.]*
 - f. What choices do you have to consider in order to obtain a job that will provide a high income? *[Education needed or job training required to obtain higher paying jobs.]*

Closure:

1. List the following terms and sentences on the board:
 - a. Income
 - b. Productivity
 - c. Training increases productivity.
 - d. Increased productivity results in greater income.
 - e. Education and career choices affect people's income.
2. Distribute a copy of Activity 3 to each student. Instruct them to match each scenario with the most applicable term or phrase from the list on the board.
3. Display a transparency of Activity 3. Review student answers. *[1. C; 2. E; 3. B; 4. A; 5. D]*

Assessment:

Write the two questions below on the board. Instruct students to answer the questions.

1. How does training affect productivity and income? Explain your answer. *[Training improves productivity. Workers are able to produce more of a good using the same resources in the same amount of time. Increased productivity increases income.]*
2. How do level of education and career choice affect income? Explain your answer. *[The amount of education one has affects the type of career he/she can have. Careers that require higher levels of education usually result in higher incomes.]*

Extensions:

1. Ask students to determine through research the incomes of people in different jobs and construct a graph or chart to depict this information. Inform students that they should include unskilled as well as skilled jobs and professional occupations in their sample.
2. Have students interview their parents or other adults and ask them how many years of education they have completed and what job they hold.

Currency Sheet

Activity 1

\$1

\$1

\$1

\$1

\$1

\$1

\$5

\$5

\$5

\$5

\$5

\$5

\$10

\$10

\$10

\$10

\$10

\$10

Productivity and Income Sheet

Activity 2

NAME _____

PERIOD 1

Name of the Good	Number Produced	Number Accepted	Wage per Unit	Total Income
---------------------	--------------------	--------------------	------------------	-----------------

PERIOD 2

Name of the Good	Number Produced	Number Accepted	Wage per Unit	Total Income
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Circle one:

My productivity in Period 2 was ($<$, $>$, $=$) my productivity in Period 1

because _____

Activity 3

For each of the following, match one of the scenarios with the appropriate term or phrase from the list on the board. Write the term or phrase in the space provided.

Scenarios:

1. Mr. Jones, a teacher, attends a workshop and learns how to use a grade-book software program. With this software he can average his class grades quickly.

2. Dr. Bell, an orthopedic surgeon, has an income greater than Mr. Reff who is a chef. _____
3. Mrs. Wilson works in a factory and paints 20 picture frames in one hour.

4. Mr. Smith works in a factory and receives a \$300 paycheck at the end of the week. _____
5. A sales clerk, Mrs. Nelson, sells twice as many pairs of shoes this week as last week. She receives a greater paycheck this week due to an increased sales commission.



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